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CLEAN VERSION OF PENDING CLAIMS

AUTOMATED FINITE CAPACITY SCHEDULER
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Sub ST 1. (Amended) A method of scheduling tasks comprising:

creating a list of activities required to accomplish the tasks;

modifying selected activities into sets of smaller activities; and

scheduling the activities and smaller activities based on discrete and continuous

constraints, wherein the continuous constraints are related to other variables by linear

mathematical relationships.

2. The method of claim 1 wherein modifying selected activities is performed as a function of integrated implications of the discrete and continuous constraints.

3. The method of claim 1 wherein modifying selected activities comprises determining if an activity is larger than a predetermined threshold.

4. The method of claim 1 wherein modifying selected activities comprises determining if an activity occurs slower than a predetermined threshold.

5. The method of claim 1 and further comprising defining discrete and continuous constraints related to the activities based on requirements of the tasks.

6. The method of claim 5 wherein activities are assigned start and end times.

7. The method of claim 5 wherein activities are scheduled based on deadlines.

8.   The method of claim 5 wherein the requirements of the task comprise identification of resources required to perform the task.

9.   The method of claim 8 wherein activities are assigned resources based on a resource balancing heuristic.

10.   The method of claim 1 and further comprising identifying infeasibilities during the scheduling of activities.

11.   The method of claim 10 and further comprising identifying a culprit activity when an infeasibility is identified.

12.   The method of claim 11 and further comprising chronological backtracking to the culprit activity which resulted in an infeasibility.

13.   The method of claim 1 and further comprising identifying suboptimalities during the scheduling of activities and identifying culprit activities causing the suboptimalities.

14. (Amended)   A method of scheduling activities comprising:

        defining discrete and continuous constraints related to the activities, wherein the continuous constraints are related to other variables by linear mathematical relationships;

        representing selected scheduling decisions as discrete and continuous constraints; and

        scheduling activities in accordance with integrated implications of the discrete and continuous constraints.

15. (Amended)   The method of claim 14 and further comprising:

        scheduling activities in accordance with previous scheduling decision constraints;

identifying infeasibilities during the scheduling of activities; and

scheduling activities in accordance with identified infeasibilities.

16. (Amended)   The method of claim 15 and further comprising:

identifying a culprit activity which resulted in an infeasibility; and

backtracking to the culprit and rescheduling the culprit activity.

17.   The method of claim 16 and further comprising identifying a culprit activity which resulted in a suboptimality.

18.   The method of claim 16 wherein the backtracking comprises chronological backtracking or dynamic backtracking.

19. (Amended) A method of modifying scheduled tasks comprising:

updating information related to the scheduled tasks;

modifying a list of activities required to accomplish the tasks based on the updated information;

optionally modifying the activities into sets of smaller activities;

modifying discrete constraints related to the activities;

modifying continuous constraints related to the activities, wherein the continuous constraints are related to other variables by linear mathematical relationships; and

scheduling the activities and smaller activities based on discrete and continuous constraints.

27. (Amended) A machine readable medium having computer executable instructions stored thereon for causing a computer to perform a method of scheduling tasks comprising:

creating a list of activities required to accomplish the tasks;

modifying selected activities into sets of smaller activities; and

scheduling the activities and smaller activities based on discrete and continuous constraints, wherein the continuous constraints are related to other variables by linear mathematical relationships.

28. (Amended) A machine readable medium having computer executable instructions stored thereon for causing a computer to perform a method of scheduling activities comprising:

defining discrete and continuous constraints related to the activities, wherein the continuous constraints are related to other variables by linear mathematical relationships;

representing selected scheduling decisions as discrete and continuous constraints; and

scheduling activities in accordance with an integrated implications of the discrete and continuous constraints.

29. (Amended) A machine readable medium having computer executable instructions stored thereon for causing a computer to perform a method of modifying scheduled tasks comprising:

updating information related to the scheduled tasks;

modifying a list of activities required to accomplish the tasks based on the updated information;

optionally modifying the activities into sets of smaller activities;

modifying discrete constraints related to the activities;

modifying continuous constraints related to the activities, wherein the continuous constraints are related to other variables by linear mathematical relationships; and

scheduling the activities and smaller activities based on discrete and continuous constraints.

32. (Amended)   A system for scheduling tasks comprising:

a continuous constraint solver engine;

a discrete constraint solver engine; and

means for integrating the engines to schedule activities to accomplish the tasks taking into account both continuous constraints and discrete constraints, wherein the continuous constraints are related to other variables by linear mathematical relationships.

33. (Amended)   A system for scheduling tasks comprising:

means for creating a list of activities required to accomplish the tasks;

means for modifying the activities into sets of smaller activities; and

means for scheduling the activities and smaller activities based on discrete and continuous constraints, wherein the continuous constraints are related to other variables by linear mathematical relationships.

34. (Amended)   A system for scheduling tasks comprising:

a constraint module that defines discrete and continuous constraints related to the activities, wherein the continuous constraints are related to other variables by linear mathematical relationships;

a module that represents scheduling decisions as discrete and continuous constraints; and

a scheduling module that schedules activities in accordance with an integrated implications of the discrete and continuous constraints.